

*Aligena laterodentata*,  
New Species, from the Caribbean Coast of Honduras

(Bivalvia : Leptonacea)

BY

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(5 Text figures)

THE ACCOUNT OF THE LEPTONACEA (CHAVAN, 1969) in the Treatise on Invertebrate Paleontology (MOORE, Ed., 1969) was in press when the review of the genus *Aligena* was published by HARRY (1 January 1969). Chavan's concept of *Aligena*, both with regard to the shell dentition and family relationships, differs from the concepts of generic and family limits as construed by OLSSON (1961), HARRY (1969), KEEN (1971) and others. KEEN (1971) re-allocated a species from the Pacific coast of Middle America, *Aligena obliqua* Harry 1969, to the genus *Orobitella* Dall, 1900. She noted that a second species, *Aligena cerritensis* Arnold, 1903, - at least the Recent members of this species as interpreted by Harry, - is probably a junior synonym of *Orobitella trigonalis* (Carpenter, 1857).

An additional species of *Aligena*, recently found on the Caribbean coast of Honduras, contributes significantly to elucidating the limits and relationships of supraspecific taxa in the Leptonacea.

*Aligena laterodentata* Harry, Britton and Nunley,

spec. nov.

(Figures 1-5)

Shell white, thin, translucent, inflated, large for the genus: the holotype, a left valve, is 8.5 mm long, 7.2 mm high and 3.1 mm semi-diameter. It is sub-reniform in profile. The prominently inflated umbos touch each other, are prosogyrous, and located midway the length of the shell. A persistent protoconch is 0.21 mm long. Anterior and posterior margins of the adult shell are evenly rounded, of equal

curvature and length; the ventral margin is deeply and broadly sinuate in the middle. A prominent, wide sulcus, vaguely defined, extends nearly to the umbo and ends at the marginal sinus. There is no lunule, escutcheon or corselet. The ligament is not visible externally. The outer surface is swollen, somewhat more so before than behind the sulcus. The surface is evenly sculptured with prominent growth striae, closely spaced and regular.

The interior is very smooth, non-nacreous. The shell margin is thin and without sculpture. The sub-umbonal cavity is very deep. The two adductor muscle scars are about equal in size, sub-rectangular, and joined with a pallial line without a sinus (the line not evident in the holotype).

The hinge plate is divided into anterior and posterior parts, completely separated below and slightly behind the

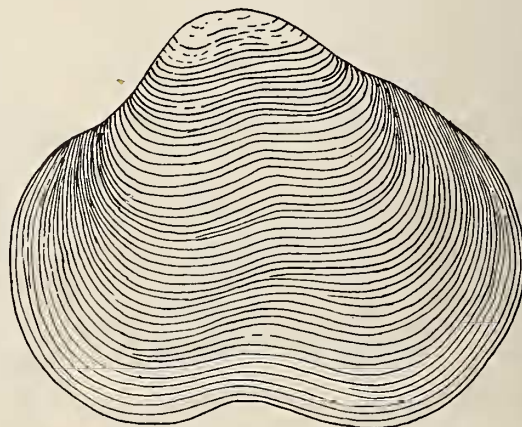


Figure 1

*Aligena laterodentata* Harry, Britton & Nunley, spec. nov.  
External view of left valve of the holotype, 8.5 mm long

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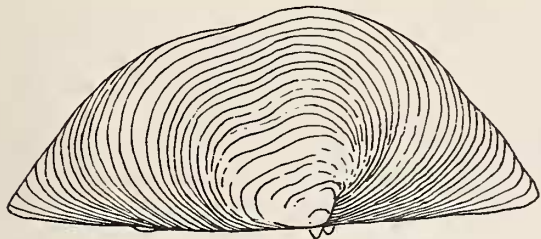


Figure 2

*Aligena laterodentata* Harry, Britton & Nunley, spec. nov.  
Dorsal view of the same shell as in Figure 1

umbo. The posterior part contains the resilium in an elongate resilifer groove, which slopes downward and backward from the anterior end of this part of the plate. The posterior plate is widest just behind the resilifer, where it projects ventrally as an obtuse point. Behind this point there is a single, elongate, posterior lateral tooth in the left valve with a deep groove margining it above, for the reception of the upper of two posterior lateral teeth in the right valve. The latter teeth are separated from each other by a very deep groove forming a socket for the left lateral tooth. The upper lateral of the right valve is much smaller than the lower one. No anterior lateral teeth are present in either valve.

There are two cardinal teeth in the left valve, the larger at the hind end of the front hinge plate, the smaller sep-

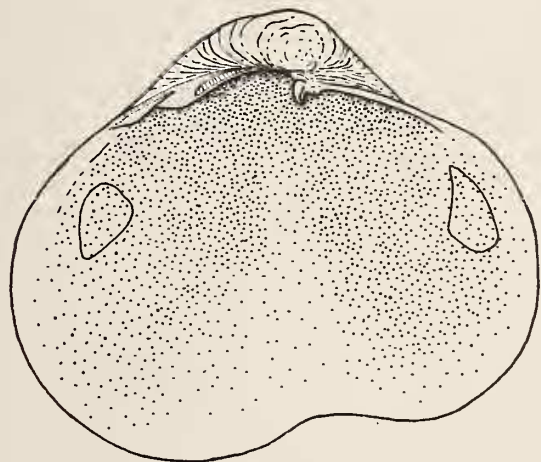


Figure 3

*Aligena laterodentata* Harry, Britton & Nunley, spec. nov.  
Internal view of the same shell as in Figure 1

arated from it by a nick in the plate. Both cardinals are finger-shaped, projecting across the midline. The right valve has only a single cardinal tooth, similar in size and shape to the larger one of the left valve. On the dorsal margin of the left valve a deep, narrow groove extends forward from the gap between the two parts of the hinge plate to the umbo. No comparable gap is present in the right valve, but a large boss, elongate antero-posteriorly, sub-cylindrical, with rounded ends, seems to be attached to the hind end of the front part of the hinge plate and to extend backward, covering the gap between the two parts of the plate. This does not seem to be a tooth in the strict sense.

Seven right and 7 left unmatched valves have been examined. They are only slightly worn, but lack periostracum. The holotype is a left valve, number 781442 of the molluscan collection of the U.S. National Museum of Natural History. Three paratypes are number 781443 of that museum. Other paratypes are in the molluscan collection at Texas Christian University.

The type locality is Calabash Bight (Manatee Bight), along the southern shore of Roatan Island, off the Caribbean coast of Honduras. Specimens were collected in fine-grained sediments associated with *Thalassia* beds at a water depth of approximately 3 m. The species is relatively common as shell material in the type locality, occurring in densities calculated to be 20 to 30 specimens per square meter. No living specimens have been recovered. NUNLEY (1979) presents a comprehensive review of the type locality and its molluscan fauna.

In size, shape and sculpture *Aligena laterodentata* is similar to *A. cokeri* Dall, 1909, from the west coast of Middle America, and to *A. salamensis* (Jaekel and Thiele, 1931) from the Indopacific faunal realm. The similarity is so great that removing it to another genus or subgenus because it has an extra cardinal tooth and posterior lateral teeth would at present be unwarranted. No other species of *Aligena* is known to have lateral hinge teeth, or more than a single cardinal tooth in each valve, CHAVAN'S (1969) interpretation of the genus notwithstanding (see below).

OLSSON (1961) and KEEN (1962, 1971) admit that *Oorbitella* Dall, 1900, is very similar to *Aligena*, and they include both genera in the Montacutidae. The characters which separate the two genera are relative differences, that is, differences in degree of continuous variables. The most prominent character whereby the two genera have been separated is the position of the umbos. They are midway the length of the shell or only slightly behind that point in *Aligena*, which is thus equilateral or nearly so. The umbos are distinctly behind the midpoint of the shell

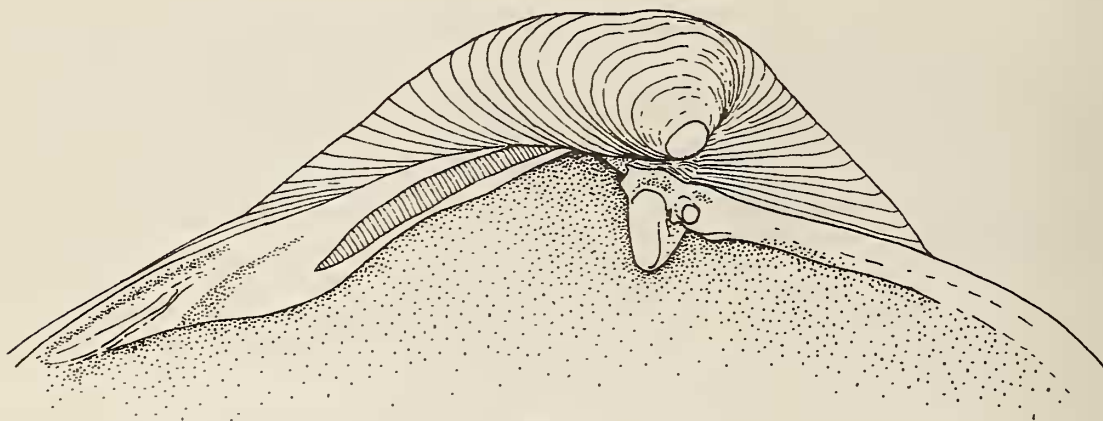


Figure 4

*Aligena laterodentata* Harry, Britton & Nunley, spec. nov.  
Enlargement of the hinge of the same shell as in Figure 1

length in *Oorbitella*, so that the anterior end of the shell is somewhat longer than the posterior end.

If the two species included by HARRY (1969) in *Aligena* are transferred to *Oorbitella*, as KEEN (1971) has done, the limits of form of the species relegated to each genus achieve more precision. Very distinctive of most species remaining in *Aligena* is the median sulcus on the surface of the shell, resulting in a sinuate ventral margin and

transforming an essentially quadrate profile into one that is slightly or distinctly reniform. In the type species, the Miocene *A. aequata* (Conrad, 1834), as well as in the Recent species from the coast of New England, *A. elevata* (Stimpson, 1851), the sulcus is absent. It was not found in the holotype of *A. nucea* Dall, 1913, of the Gulf of California, but it occurs in other specimens of that species as interpreted by HARRY (1969). The sulcus is present in

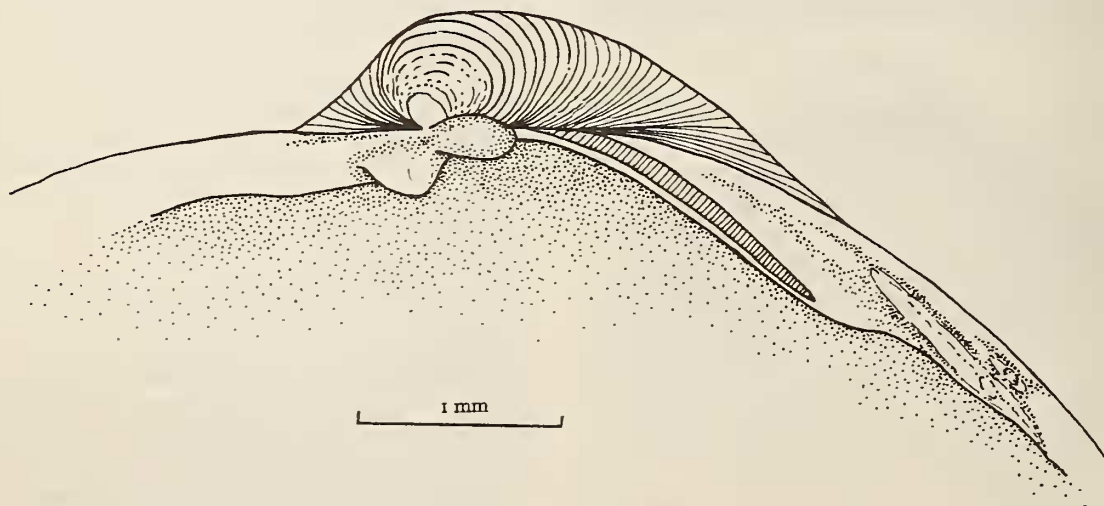


Figure 5

*Aligena laterodentata* Harry, Britton & Nunley, spec. nov.  
Right valve, enlargement of the hinge

*A. texasiana* Harry, 1969, *A. cokeri* Dall, 1909, *A. salamensis* (Jaeckel and Thiele, 1931), and it is very prominent in *A. laterodentata* spec. nov.

ROSEWATER (1968) has proposed that behavioral differences may be correlated with the prominence of the sulcus among species of *Aligena*. He noted that on the Pacific coast of Panama, *A. cokeri* lives firmly attached to the exterior of the tube of the polychaete, *Mesochaetopterus alipes* Monroe, 1933. On each side of the attachment there is a hole through the tube, apparently serving as incurrent and excurrent passages, respectively, for water circulating through the mantle cavity of the bivalve. He further suggested that this unusual arrangement may be correlated with the prominent sulcus of the shell, which coincides with the position of the byssus. In support of this interpretation he noted that *Aligena elevata*, the life habits of which were extensively described by GAGE (1968, as *Montacuta elevata*), has only a flimsy and temporary byssal attachment to the exterior of the tube of the polychaete with which it lives, *Clymenella torquata* (Leidy, 1855), and *A. elevata* lacks the furrow and sinus on the exterior of the shell.

The peculiar rounded appendage on the hinge of the right valve of *A. laterodentata*, in the space between the two parts of the hinge plate, may represent a calcified part of the ligament. Only a fragment of this structure was present in the other specimens examined. This may be the same structure which KEEN (1962) found in *Orobitella* (*Isorobitella*) *singularis* Keen, 1962, from San Quentin Bay, west coast of Baja California. The hinge appendage of *A. laterodentata* fits her description of it in *O. singularis* very well, but the figure she presented is of little help (*op. cit.*, p. 324; fig. 4c, reproduced by CHAVAN, 1969, p. N532, fig. E34, 2b).

Incidentally, *O. singularis* Keen, 1962, was not included in her monumental work on the Sea Shells of Tropical West America (KEEN, 1971) because it was found north of the limit of the area covered. She did mention it briefly in conjunction with another species (*op. cit.*, p. 144). However, *O. singularis* seems to be identical with "*Orobitella* sp." from Sechura, Peru, figure 4 of Plate 35 of OLSSON (1961), which is not dealt with in the text of that work, nor apparently noticed elsewhere.

CHAVAN'S (1969:N523 of volume 2) cryptic account of the hinge dentition of the genus *Aligena* is as follows: "Hinge with small 3a, stout 1, curved 2a in prolongation of an anterior lateral, with small 2b behind it; wide oblique ligament and single strong posterior lateral on each valve." By decoding this cryptogram according to the apparent key, found on pages N53-N56 of the first volume of this

part of the Treatise (MOORE, 1969, Editor), the following translation results: Hinge with (a) small (cardinal tooth and a) stout (one before it in the right valve, a) curved (cardinal tooth) in prolongation of an anterior lateral (tooth), with (a) small (cardinal tooth) behind it (in the left valve); etc.

This is inconsistent with the description of the Kelliidae (CHAVAN, 1969: N522) in which family Chavan placed *Aligena*, for of the family he says there are "no distinctly elongate anterior laterals . . ." The figure of "*Aligena aequata* (Conrad)", numbers 7a and 7b of figure E27 on page N524, have the hinge structure poorly shown, but they seem to indicate a single, long, posterior lateral tooth in each valve, plus two cardinal teeth in the left valve, the larger of which is a continuation of a long anterior lateral lamella; whether cardinal teeth or an anterior lateral tooth are present in the right valve (his fig. E27, No. 7a) is a matter of interpretation of a very ambiguous drawing. His figures are apparently originals, not previously published, but the source of the specimens is not stated. They depict a much more quadrate shell, with straight, truncated anterior and posterior margins and more inflated umbos, than the topotypic *Aligena aequata* (Conrad, 1834) which HARRY (1969: 165-166, figs. 1-3) studied at the U.S. National Museum of Natural History. Chavan's species is evidently not the same one.

## ACKNOWLEDGMENTS

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